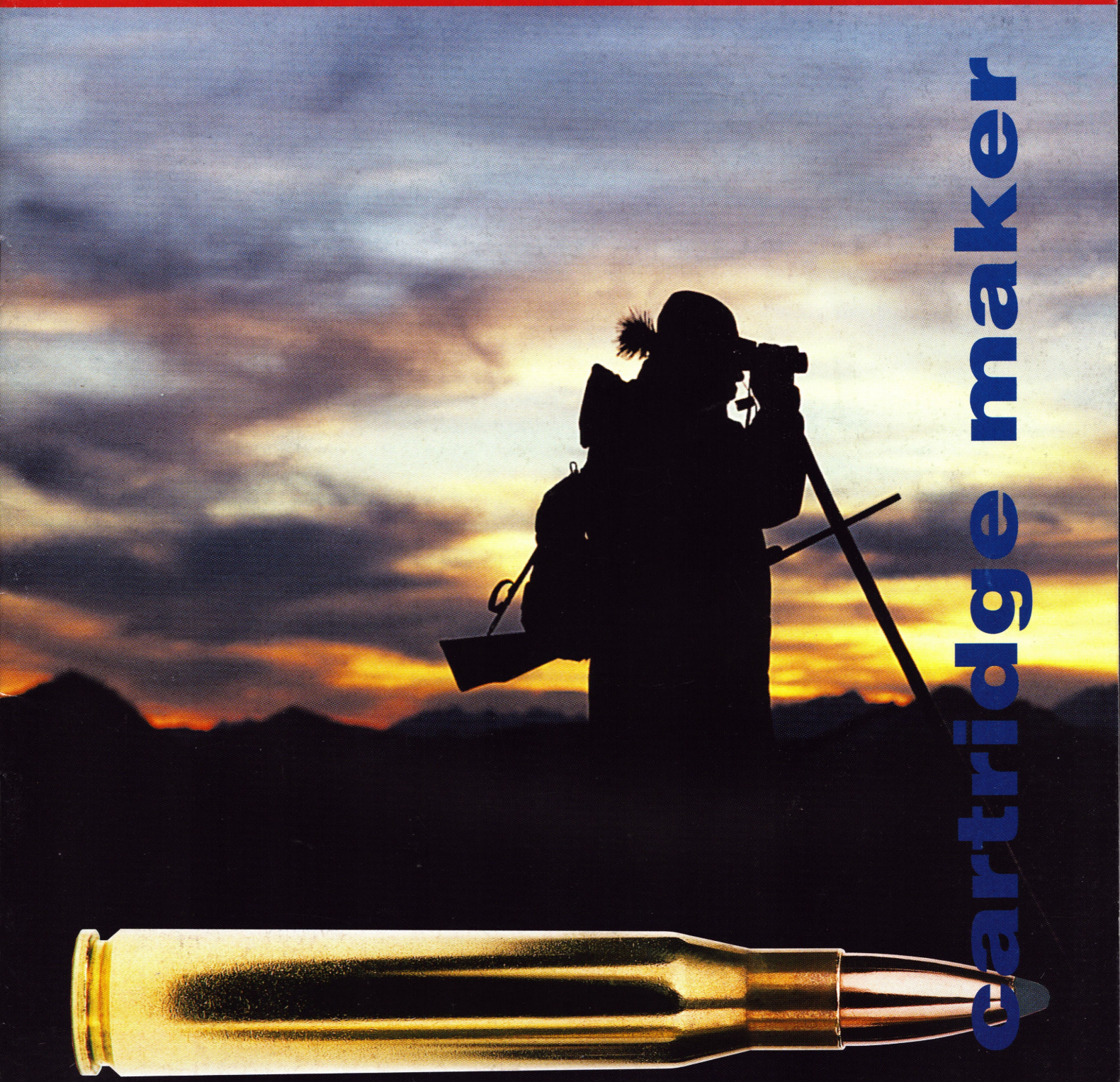
hirtenberger



the cartridge maker

“A company with calibre.”

“From the gun cotton factory to the cartridge maker”

The **hirtenberger** cartridge factory can look back on a one hundred-year tradition. Sustained development and the continuous search for improvements made the company known throughout the world: the name **hirtenberger** is a guarantee for quality and precision. In 1897 the firm became a joint-stock company.

It became necessary to expand the workshops and the machine park to enable it to meet its orders on time.

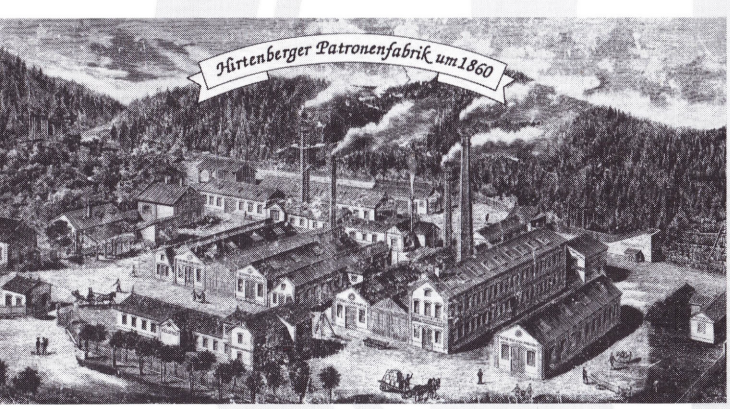
The company is now in private ownership with a payroll of over 300.
A variety of patent applications is a testimony to its creativity and know-how.

Two associate companies were founded in 1993:

Precision-stamped and bent parts, mainly for companies in metrology and in entertainment electronics are now produced in *Hirtenberger Präzisionstechnik Ges.m.b.H.*

“Love of our environment”

Apart from the various diversifications in which the company has been investing successfully for years, the main emphasis of **hirtenberger AG** is now on further development of ammunition technology. Amongst other things, account has been taken of increased awareness of the environmental problems by developing and implementing a pollutant-free primer.



“The Hirtenberger cartridge factory around 1860”

ÖQS

ZERTIFIKAT

Die
ÖSTERREICHISCHE VEREINIGUNG ZUR ZERTIFIZIERUNG
VON QUALITÄTS- UND MANAGEMENTSYSTEMEN

bescheinigt hiermit, daß das Unternehmen

hirtenberger
Aktiengesellschaft
A-2552 HIRTENBERG / AUSTRIA

A-2552 Hirtenberger, Leobersdorfer Straße 31-33

ein
QUALITÄTSMANAGEMENTSYSTEM
eingeführt hat und anwendet.

Durch ein Zertifizierungsaudit der ÖQS wurde der Nachweis erbracht, daß dieses Qualitätsmanagementsystem die Forderungen der folgenden Norm erfüllt:

ÖNORM EN ISO 9001:1994

Qualitätsmanagementsysteme
Modell zur Qualitätssicherung/QM-Darlegung
in Design, Entwicklung, Produktion, Montage und Wartung

Wien, am	Registrier-Nr.:	gültig bis
17.12.1998	1422/0	10.12.2001

ÖSTERREICHISCHE VEREINIGUNG ZUR ZERTIFIZIERUNG
VON QUALITÄTS- UND MANAGEMENTSYSTEMEN
Geschäftsführung:

Ing. Viktor Seitschek — Konrad Scheiber

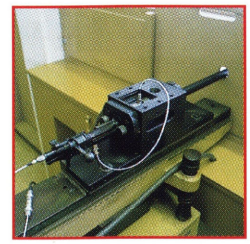
Die ÖQS ist gemäß Akkreditierungsgesetz BGBl.Nr. 468/1992 mit Verordnung BGBl.Nr. 488/1993 vom 23.7.93 akkreditiert.
Die ÖQS ist Mitglied bei IQNet (The International Certification Network).

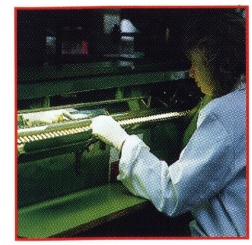
“Innovation at all levels”

Production of large-calibre ammunition was expanded in 1965, and a new production line for TNT was set up in the course of this. Since then, **hirtenberger AG** has been a regular supplier to the Austrian Army.

A dedicated division was built on the company’s decades of experience in pyrotechnics: Components for automotive safety systems are produced in collaboration with international companies.
Its industrial equipment company *„BFM - Industrieeinrichtungen“* provides industrial automation.

“Quality and precision - since 1860.”





“Research and development for your good hunting fortune”

The hunting ethos demands, above all, that all hunting is in accordance with the appropriate hunting principles. The first such principle demands that all shooting is well aimed and that the ammunition used has adequate killing power. If the shot fails to kill the game, the hunter must immediately search for it. In order to meet continually increasing demands for outstanding precision and killing effect, we now make enormous investments in research and development until a product reaches the market fully developed for series production.

“The three main criteria for quality”

Destructive power:

The higher the bullet velocity on impact, the better the depth of penetration of the shot and the greater the impact energy, thereby also ensuring a high resistance in the body of the game and the resulting high shock and killing power.

Hydrodynamic effect:

This arises due to the transmission of shock and pressure waves when the bullet acts on the body of the game.
The minimum velocity on impact must be over 500 m/s in order to achieve a suitable effect. The higher the penetration velocity, the greater is the effect.

Shock- and impact effect:

This takes place at the impact of the bullet on the body of the game and causes paralysis of the nervous system.
With high-velocity bullets, we speak of double or paired shock effect.

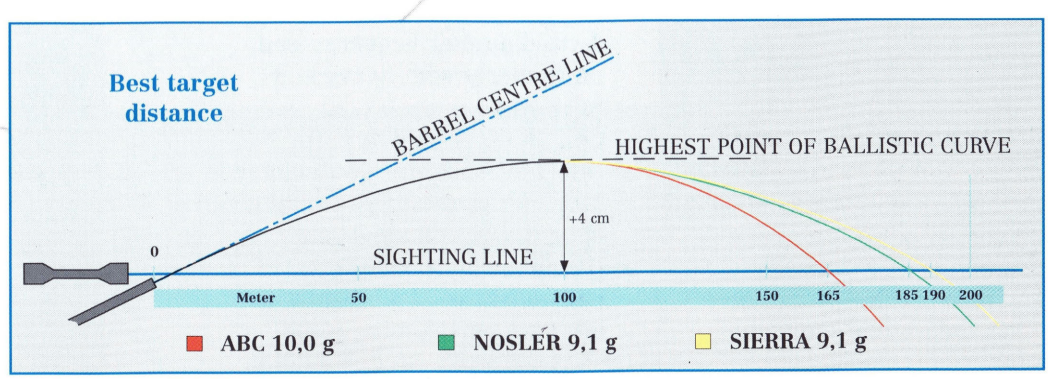
“Quality assurance from production to the hit”

Our foremost objective is to market a bullet, the efficiency of which has maximum effect in the body of the game.
This is why it is not only research and development which form part of the very high aspirations of **hirtenberger AG:**
So too does quality assurance of all products, and this continuously accompanies the production activities.

“We test what you hide in your barrel”

Digital measurements, computer-based control processes and the inspecting eye of highly qualified employees ensures that no defective cartridges are found in your weapon. Because our concern is your certainty of hitting your target!

A good shot begins its life in the cartridge factory. One test will convince you of our quality.



“Best target distance settings for cal. 7x64 - ABC, Nosler and Sierra.”

“The ABC for large game.”

“What it takes is a clever bullet”

Both the design and the action of the **hirtenberger** ABC bullet differ significantly from conventional rifle bullets.

It is a single-chamber solid bullet in a malleable copper-zinc alloy (CuZn10 - gilding metal) with continuously controlled expansion and mushrooming of the solid bullet body.

The deformation of the bullet is introduced safely within the target by the soft lead tip. This ensures that the solid body of the bullet rolls up into four barbs.

The mushrooming of the bullet tip therefore starts from the thin tip edge. Thanks to four longitudinal notches, the so-called control notches inside the bullet's bore, the barbs will roll up as programmed.

“For all hunting calibres: the practical five-cartridge pocket pack”

“With the ABC bullet, only the bullet tip is deformed”

Thanks to this sharp-edged, extremely stable and symmetrical rose-like shape of about 2 1/2 times calibre diameter, a very stable wound channel is achieved even when bones are encountered, because of the high rate of rotation (approx. 3.000 to 4.000 rev/sec.) of the shot.

Because of the high original bullet weight (over 90% of the original weight), an exit of the wound channel of some 3 to 4 cm diameter is guaranteed, particularly with heavy and hard game.

As experience and practice has shown, there is a particularly good effect of the ABC bullet with medium and heavy game, and this particularly in the calibres 7 mm to .375 H&H.

Lightning effect and very little destruction of game - even with weaker game - are the hallmark of this bullet.

With the ABC bullet, **hirtenberger** is offering the hunter a proven concept which has been adopted by renowned bullet manufacturers.

"SIERRA - for hunting and sport."

"Highest precision as semi jacket concept"

This is a high-precision bullet of semi jacket design which is just as suitable for hunting as it is for the shooting range.

The cartridges have been matched optimally in respect of both inner and outer ballistics.

The hunter is filled with enthusiasm by the way in which it translates the power spectrum of weapon and optics into outstanding hitting results. Such results could previously be achieved only with cartridges reloaded and matched to a specific weapon. These properties are of course also called for in hunting use, particularly at large distances.

The jacket material used is gilding metal (CuZn10). The bullet is only partly jacketed and the soft lead tip ensures rapid mushrooming.

If the impact energy is sufficiently high and the shot well-aimed, an optimum immediate effect is achieved. This results in a high energy output, determined by the high degree of deformation and an adequate rest weight.

With the Sierra bullet **hirtenberger** offers the users of hunting and sporting guns the ideal symbiosis of the performance criteria mentioned above at a good price-performance ratio.

"MATCH-BULLET"

We use the Sierra Match King bullet for our Match cartridges, which because of its conical rear part and the hollow point - combined with very narrow tolerances - has just the power reserves needed for professional competition use.

"SIERRA offers a high-precision bullet with typical torpedo-shaped boat-tail"

“PREMIUM. The Nosler rifle cartridge for hoofed game.”

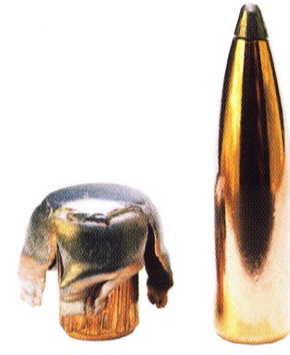
Because of the size of the exit wound channel, sufficient signs of a successful hit can be found whilst tissue damage is reduced to a minimum.
The excellent efficiency of the Nosler bullet is primarily characterised by the shock and killing effect as well as by outstanding explosive effect. The destructive effect is reduced.

“Nosler - one of the world´s finest bullet manufacturers”

The Nosler bullet is a highly-developed and sophisticated two-chamber bullet.

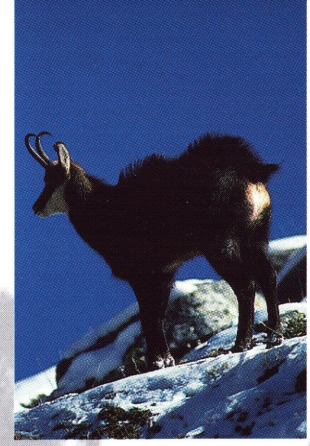
The gilding metal jacket tapers towards the tip.
On impact, the jacket breaks immediately and rolls up uniformly towards the end of the projectile even at low velocities and large ranges.

On penetrating the animal's body, the soft lead core in front of the bullet is deformed, causing severe shock. Because of the uniformly increasing jacket wall thickness, there is optimum expansion of the projectile in the penetration of the animal's body in addition to the depth of the penetration, causing lethal shock extending into the breadth. The solid partition wall between the rear lead cores prevents further disintegration of the bullet, and supports the bent-down barbs of the front bullet jacket. Because more than 80% of the original weight of the bullet is retained, very high penetration power is achieved with this type of bullet. This is why an exit wound channel is nearly always present.



“The solid partition wall in front of the rear lead core prevents further disintegration of the bullet after the impact.”

"Does justice to all requirements."



"NOSLER SOLID BASE"

Nosler bullets are single-chamber projectiles up to calibre .243 - the so-called „Nosler Solid Base - bullets".

Optimum output of energy is achieved due to a late but nevertheless very rapid mush-rooming of the bullet, as a result of which - thanks to the special solid-base design unlike other rapidly-expanding bullets - an exit wound channel is guaran-teed with very little game destruction.

As with the twin-chamber bullets, a good centre-of-gravity position and the gilding metal jacket tapered towards the tip, guarantee high accuracy as well as a very flat trajectory.

"Thanks to the special design, Nosler Ballistic Tip meets both the needs of the hunter and the high precision requirements of the sports marksman."

obtainable	in calibre
Nosler-Partition	from .243
Ballistic Tip	.222 Rem., .222 Rem.Mag., .223 Rem., 5,6 x 50 Mag., 5,6 x 50 R Mag., .243 Rem.
Solid Base	.222 Rem., .222 Rem.Mag., .223 Rem., 5,6 x 50 Mag., 5,6 x 50 R Mag.

"NOSLER BALLISTIC TIP"

This bullet design offers special advantages because of its cover-ed hollow point.

Thanks to the particular position of its centre of gravity, the pro-perties of a match bullet have been achieved, i.e. extraordina-rily good accuracy with a very flat trajectory.

"Because of the covered hollow point, this design has some quite special advantages - the Nosler Ballistic Tip."

“Shotshell cartridges - for hunting, parcours, trap and clay pigeon.”

“To make good cover better”

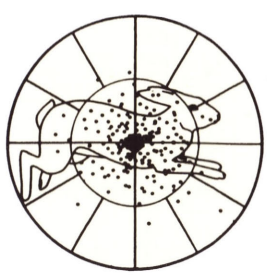
The shot that is fired from the shotgun is probably the most difficult of all to define and analyse.

Because of theoretical findings which have lately become necessary in every technical activity, we have - thanks to years of experiment - gained experience of major importance to everyday practice, and we have translated this into the development of our products.

As soon as the shot load has left the barrel, it begins to be fully subjected to the air resistance of the atmosphere.
Because the side guidance of the barrel has now gone, but the wad is still pushing, the pellets of the load begin to spread. The outer pellets fly more slowly than the ones at the centre of the column, leading to further spreading.

Moreover during their flight, the pellets in the column have continuous contact with one another.

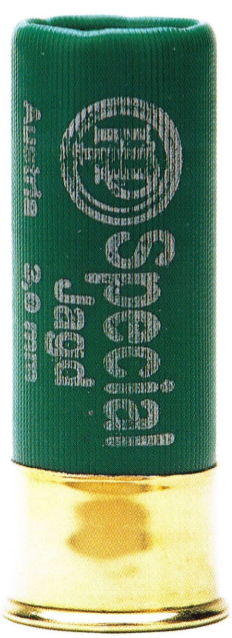
On the basis of the physical-technical facts briefly explained here, it is very easy to recognise the problem area in which the development of high quality shotshell cartridges must be considered.



The pre-requisite for optimum performance is a good pattern, which is one of the requirements for good coverage. This means that not only extremely uniform distance of the pellets to one another must be achieved at the usual hunting distance of 35 metres, but also at the intermediate distances.

The muzzle velocities of different types of shotshells depend predominantly on the type and quality of the powder with which they have been charged, and they range between 300 m/s and 450 m/s. According to this speed the predicted position of target at the shot is focussed on the game and clay pigeon.

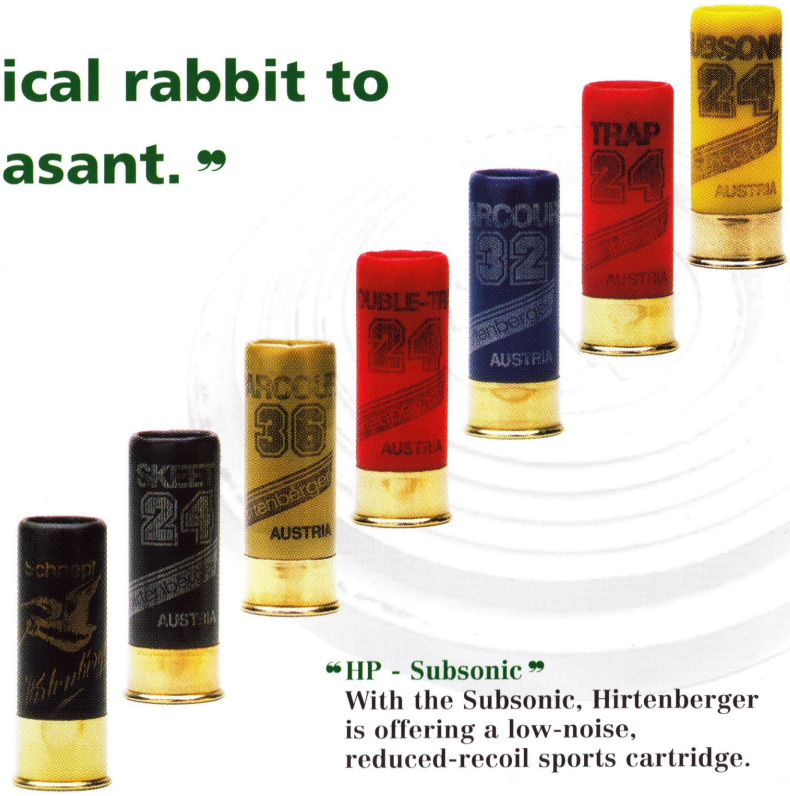
“ The HP-Spezial: a successful further development of the legendary Schnepf ”



Recommended for use on	2,5	3,0	3,5	4.0
Discus	○			
Snipe	●	○		
Partridge	●	○		
Pigeon	●	○		
Rabbit	●	●		
Pheasant	○	●	○	
Duck	○	●	○	
Goose		●	●	○
Hare		●	●	○
Fox			●	●

● excellent for this purpose; ○ may be used under certain conditions

"From the mechanical rabbit to the towering pheasant."



Thanks to continuous further development of the proven **Schnepf**, **hirtenberger** has taken account of all requirements, and with the **HP-Spezial Jagd** offers the huntsman an enormously efficient cartridge.

"HP - Subsonic"
With the Subsonic, Hirtenberger is offering a low-noise, reduced-recoil sports cartridge.

Shotshells hunting	Calibre	Grams	mm
HP-Spezial Jagd	12/70/16	36	3,0 - 3,5 - 4,0
HP-Spezial Jagd	16/70/12	32	3,0 - 3,5 - 4,0
HP-Spezial Jagd	20/70/16	28	2,75 - 3,3
HP-Spezial Jagd	20/76/16	36	3,0 - 4,0
HP-Spezial Jagd Posten	12/67,5/12	36	7,5
HP-Schnepf (Paper)	12/70	36	2,5 - 3,0 - 3,5
HP-Schnepf (Paper)	16/70	32	2,5 - 3,0 - 3,5 - 4,0
HP-Schnepf (Paper)	20/70	28	3,0 - 3,5 - 4,0
Shotshells sporting	**Calibre**	**Grams**	**mm**
HP-Skeet	12/70	24	2,0
Hp-Double-Trap	12/70	24	2,25
HP-Trap	12/70	24	2,4
HP-Parcours	12/70	28-36	2,0 - 2,25 - 2,4
HP-Subsonic	12/70	24-28	2,4

Changes are possible without advance notice, in the interest of continuous product development.

For the hunting course, a type of shooting sport originating from England, and acquiring more and more popularity in continental Europe over the past two decades, Hirtenberger offers you the 32 g Parcours cartridge used with great success by the many Austrian top shooters.

Shooting stadium Hirtenberg

6	50/100 m-ranges
10	ranges for pistol/revolver
3	ranges for Trap/Skeet
1	hunting course / rabbit

Opening hours:

Rifle- and pistol ranges:	Tues - Sun	9.00 - 18.00 hours
Shotgun ranges:	Tues - Fri	9.00 - 18.00, Sat 8.00 - 14.00
	Sun	9.00 - 13.00, Mon closed

A-2552 Hirtenberg, Am Lindenberg, Tel: +43/2256/82 315

“Pistol and revolver cartridges.”

“Into the shoot with pistol and revolver”

The demand for quality in both hunting and sporting areas is very high and is met by continuous research and development work.

Quality and precision are written large at **hirtenberger**. It is not only sports shooters of the international top class who trust the Austrian quality product but also Police units of many European countries.

It is possible to find the optimum cartridge for this requirement profile from the wide range of **hirtenberger** cartridges.

“Peter Paul Ploner trusts the quality of Hirtenberger. He has been Province, State and European Champion many times, and also the Vice World Champion in the IPSC 1988 team and winner of the European Steel Challenge 1998.”

“Pistol-Cartridges”

			6,35 mm Brng. (.25 Auto)	7,65 mm Brng. (.32 Auto)	9 mm Brng. short (.380 Auto)	9 mm Police 9 x 18	9 mm Parabellum Luger 9 x 19	9 mm Parabellum Combat 9 x 19	9 mm Steyr	.45 AUTO (ACP)
type of bullet			FMJ-RN	FMJ-RN	FMJ-RN	FMJ-FN	FMJ-RN	FMJ-RN	FMJ-RN	FMJ-RN
bullet weight	g (grs)		3,2 (49)	4,6 (71)	6,2 (95)	6,5 (100)	8,0 (123)	7,5 (115)	7,5 (115)	14,9(230)
velocity	m/s	V_0	220	300	280	315	360	355	375	265
		V_{10}	215	295	275	307	355	338	358	257
		V_{25}	210	290	270	300	345	317	337	249
		V_{50}	200	280	260	285	335	287	307	243
bullet energy	Joule	E_0	77	207	243	322	518	473	527	523
		E_{10}	74	200	234	306	504	428	481	492
		E_{25}	71	193	226	293	476	377	426	462
		E_{50}	64	180	210	264	449	309	353	440
barrel length	mm		60	100	100	100	125	125	130	125

“With Hirtenberger to the winner´s rostrum.”

Permanent quality control, the use of both high-quality materials and the most modern manufacturing plants guarantee the marksmen a variety of criteria which he should not overlook when selecting his ammunition.

Quality is a question of development

High bullet velocity
High bullet energy
Uniform muzzle velocity
Outstanding target patterns
Excellent target ballistics
and particularly reliable functioning with automatic and semiautomatic weapons.

“A revolutionary innovation”

hirtenberger produces with pollution-free primers and fully coated bullets, authority ammunition in such a way that the heavy metal contamination (barium, lead and antimony) from training and shooting in indoor shooting ranges is practically zero.

Contamination of the weapon is also reduced to a minimum with this primer.

“Revolver-Cartridges”

.32 S & W long	.32 S & W long	.357 Magnum	.38 S & W	.38 Special	.38 Special	.38 Special			
WC	LRN	SP-FN	LRN	WC	LRN	SP-FN			**type of bullet**
6,5(100)	6,4(98)	10,2(158)	9,5(146)	9,6(148)	10,2(158)	10,2(158)		g (grs)	**bullet weight**
220	255	460	225	225	260	350	V_0	m/s	**velocity**
214	250	455	220	220	255	345	V_{10}		
207	245	445	215	210	245	335	V_{25}		
199	235	430	210	195	235	325	V_{50}		
155	208	1079	240	243	345	625	E_0	Joule	**bullet energy**
147	200	1056	230	232	332	607	E_{10}		
137	193	1010	220	212	306	572	E_{25}		
127	177	943	209	183	282	539	E_{50}		
125	125	210	151	151	151	151		mm	**barrel length**

“Components for reloaders”

“Cases”

Maximum dimensional accuracy and constant case volume, as well as the necessary high stability to withstand the stress of the shot, in combination with a „malleable material“ allowing multiple recharging.

These are the requirements which Hirtenberger satisfies by continually improving the manufacturing technology.

“Bullets”

As well as the proven Nosler and Sierra bullets, **hirtenberger** offers - especially for hunting large and heavy game - the ABC bullet for reloaders.

Full-jacket bullets in diameter .223 and .308 can also be supplied.

“Percussion caps”

All percussion caps of bench-test quality manufactured in either the Boxer or Berdan version are available in all current dimensions.
Our range also covers special percussion caps for rifle cartridges with rim, as well as for 9 mm Parabellum pistols which have higher sensitivity in order to ensure reliable ignition with these weapons.

type	diameter (mm)	designation
1206	4,45	SP
1242/1212	4,45	SP / 9mm Parabellum
1253	4,45	SP Magnum
1207	5,33	LP
1137	5,53	LP - Berdan
1205	4,45	SR
1105	4,50	SR - Berdan
1215	5,33	LR
1225	5,33	LR for rimmed rifle cartridges
1101	5,50	LR - Berdan
1401	6,58	percussion caps for shotshells

All loading data supplied without liability. Loading data subject to change, our products may be improved at any time without prior announcement.

the reloading components

“Rifle cartridges”

cartridge	bullet weight		powder	weight of powder		gaspres. lt. CIP	pressure effective	max.cart. length	HP primer
	g	grs	type	g	grs	bar	bar	mm	type
.22 Hornet	2,92	45	.30 Carb.	0,56	8,6	2800	2700	43,7	1205
.222 Rem.	3,24	50	Vihtavuori N 125	1,28	19,8	3200	2900	54,1	1205
.222 Rem.	3,6	55	Bofors RP 1	1,40	21,6	3200	3000	54,1	1205
.222 Rem.	3,6	55	Bofors RP 1	1,40	21,6	3200	3000	54,1	1205
.222 Rem.Mag.	3,6	55	Bofors RP 2	1,77	27,3	3500	3300	57,9	1205
.222 Rem.Mag.	3,6	55	Vihtavuori N 133	1,65	25,5	3500	3300	57,9	1205
.222 Rem.Mag.	3,6	55	Vihtavuori N 133	1,66	25,6	3500	2900	57,9	1205
.223 Rem.	3,6	55	PB powder					57,4	1205
.223 Rem.	3,6	55	Vihtavuori N 133	1,66	25,6	3700	3400	56,0	1205
.223 Rem.	3,6	55	Vihtavuori N 133	1,61	24,8	3700	3100	54,7	1205
.223 Rem. VM-Sp	3,6	55	PB powder	1,72	26,5	3300	2900	61,0	1205
5,6 x 50 Mag.	3,6	55	Vihtavuori N 133	1,70	26,2	3300	2900	61,0	1205
5,6 x 50 Mag.	3,6	55	Vihtavuori N 133	1,72	26,5	3300	2900	61,0	1205
5,6 x 50 Mag.	3,6	55	Vihtavuori N 133	1,70	26,2	3300	2900	60,2	1205
5,6 x 50 R Mag.	3,6	55	Vihtavuori N 133	1,70	26,2	3000	2900	61,0	1205
5,6 x 50 R Mag.	3,6	55	Vihtavuori N 133	1,72	26,5	3000	2900	61,0	1205
5,6 x 50 R Mag.	3,6	55	Vihtavuori N 133	1,70	26,2	3000	2900	60,2	1205
.243 Win.	6,2	95	Bofors RP 4	2,75	42,4	3600	3200	67,0	1215
.243 Win.	6,2	95	Bofors RP 4	2,75	42,4	3600	3200	67,0	1215
.243 Win.	6,5	100	Bofors RP 4	2,75	42,4	3600	3300	66,7	1215
.243 Win.	6,5	100	Bofors RP 4	2,75	42,4	3600	3300	65,5	1215
6,5 x 54 MS	10,4	160	Bofors RP 3	2,20	34,0	3200	3000	77,0	1215
6,5 x 55	10,4	160	Bofors RP 5	2,80	43,2	3300	3200	73,0	1215
6,5 x 57	6,8	105	Bofors RP 4	3,24	50,0	3400	3300	73,0	1215
6,5 x 57	7,8	120	Bofors RP 4	3,05	47,1	3400	3100	77,3	1215
6,5 x 57	8,1	125	Bofors RP 4	3,08	47,5	3400	3300	75,0	1215
6,5 x 57	9,1	140	Bofors RP 4	2,95	45,5	3400	3200	75,0	1215
6,5 x 57 R	6,8	105	Bofors RP 4	3,12	48,1	2900	2700	73,0	1225
6,5 x 57 R	8,1	125	Bofors RP 4	2,95	45,5	2900	2700	75,0	1225
6,5 x 57 R	9,1	140	Bofors RP 4	2,82	43,5	2900	2700	75,0	1225
6,5 x 57 R	7,8	120	Bofors RP 4	3,00	46,3	2900	2800	77,0	1225
6,5 x 68	8,1	125	Bofors RP 5	4,05	62,5	3800	3500	86,5	1215
6,5 x 68	6,8	105	Vihtavuori N 160	4,25	65,6	3800	3700	83,5	1215
6,5 x 68	9,1	140	Bofors RP 5	4,10	63,3	3800	3700	86,5	1215
6,5 x 68	7,8	120	Bofors RP 5	4,15	64,0	3800	3600	86,2	1215
.270 Win.	8,4	130	Bofors RP 4	3,46	53,4	3700	3300	82,2	1215
.270 Win.	9,7	150	Bofors RP 4	3,32	51,2	3700	3500	82,2	1215
.270 Win.	8,4	130	Bofors RP 4	3,49	53,9	3700	3300	81,5	1215
7 x 57	9,1	140	Bofors RP 3	2,95	45,5	3400	3200	77,0	1215
7 x 57	9,1	140	Bofors RP 3	2,95	45,5	3400	3200	75,0	1215
7 x 57	11,3	175	Bofors RP 4	3,05	47,1	3400	3200	77,0	1215
7 x 57 R	9,1	140	Bofors RP 3	2,85	44,0	3000	2800	77,0	1225
7 x 57 R	11,3	175	Bofors RP 3	2,63	40,6	3000	2800	77,0	1225
7 x 57 R	9,1	140	Bofors RP 3	2,85	44,0	3000	2800	75,0	1225
7 x 64	9,1	140	Bofors RP 4	3,60	55,6	3600	3300	84,0	1215
7 x 64	9,1	140	Bofors RP 4	3,60	55,6	3600	3300	84,0	1215
7 x 64	10,0	154	Bofors RP 4	3,46	53,4	3600	3300	83,0	1215
7 x 64	11,3	175	Bofors RP 4	3,50	54,0	3600	3400	84,0	1215
7 x 64	11,3	175	Bofors RP 4	3,46	53,4	3600	3300	84,0	1215
7 x 65 R	9,1	140	Bofors RP 4	3,60	55,6	3300	3100	83,5	1225
7 x 65 R	9,1	140	Bofors RP 4	3,56	54,9	3300	3100	81,5	1225
7 x 65 R	10,0	154	Bofors RP 4	3,43	52,9	3300	3100	83,5	1225
7 x 65 R	11,3	175	Bofors RP 4	3,40	52,5	3300	3200	83,5	1225
7 x 65 R	11,3	175	Bofors RP 4	3,38	52,2	3300	3100	83,5	1225
7mm Rem.Mag.	9,1	140	Bofors RP 5	4,25	65,6	3700	3600	82,9	1215
7mm Rem.Mag.	9,1	140	Bofors RP 5	4,35	67,1	3700	3600	81,5	1215
7mm Rem.Mag.	11,3	175	Bofors RP 5	3,95	60,9	3700	3600	83,2	1215
.308 Win. VM-Sp	9,45	147	PB powder			3600		71,1	1215
.308 Win.	9,7	150	PB powder			3600		71,1	1215
.308 Win.	10,7	165	Vihtavuori N 140	2,90	44,7	3600	3300	71,1	1215
.308 Win.	11,6	180	PB powder			3600		71,1	1215
.308 Win. Match	12,3	190	Bofors RP 3	2,73	42,1	3600	3000	71,1	1215
.30-06 Springf.	9,7	150	PB powder			3500		82,5	1215
.30-06 Springf.	10,7	165	Vihtavuori N 140	3,15	48,6	3500	3000	82,2	1215
.30-06 Springf.	10,7	165	PB powder			3500		78,0	1215
.30-06 Springf.	11,6	180	PB powder			3500		83,3	1215
.300 Win. Mag.	9,7	150	Bofors RP 5	4,85	74,8	3700	3600	84,5	1215
.300 Win. Mag.	10,7	165	Vihtavuori N 160	4,60	71,0	3700	3300	84,0	1215
.300 Win. Mag.	10,7	165	Bofors RP 5	4,35	67,1	3700	3600	83,5	1215
.300 Win. Mag.	11,6	180	Bofors RP 5	4,50	69,4	3700	3600	84,5	1215
8 x 57 IS	11,3	175	Bofors RP 2	2,95	45,5	3400	3100	77,3	1215
8 x 57 IS	13,0	200	Bofors RP 2	2,90	44,7	3400	3200	77,0	1215
8 x 57 IRS	11,3	175	Bofors RP 2	2,90	44,7	2900	2700	77,3	1215
8 x 57 IRS	13,0	200	Bofors RP 2	2,79	43,0	2900	2800	76,0	1225
8 x 68 S	11,3	175	Bofors RP 4	4,70	72,5	3800	3300	86,0	1215
8 x 68 S	13,0	200	Bofors RP 5	4,80	74,1	3800	3500	85,8	1215
8 x 68 S	13,0	200	Bofors RP 4	4,40	67,9	3800	3500	85,0	1215
9,3 x 74 R	17,5	270	Bofors RP 2	3,53	54,5	3000	2800	92,5	1225
.375 H&H Mag.	17,65	272	Bofors RP 3	4,50	69,4	3700	3500	91,4	1215

“Pistol- and revolver cartridges”

6,35 mm (.25 Auto)	FMJ-RN 3,2 | 50	Vihtavuori N 310	0,072	1,11	1300	1150	23,0	1206
7,65 mm (.32 Auto)	FMJ-RN 4,6 | 71	Vihtavuori N 310	0,13	2,0	1800	1400	25,0	1206
9 mm short (.380 Auto)	FMJ-RN 6,2 | 95	Vihtavuori N 310	0,177	2,73	1500	1400	25,0	1206
9 mm Parabell. (9 mm Luger)	FMJ-RN 8,0 | 123	PB powder			2600	2400	29,69	1242
9 mm Para Combat	FMJ-RN 7,5 | 115	Vihtavuori N 340	0,35	5,40	2600	2000	29,69	1242
9 mm Steyr	FMJ-RN 7,5 | 115	PB powder			1450	1100	33,10	1206
.45 Auto (ACP)	FMJ-RN 14,9 | 230	Bofors PK 1	0,332	5,12	1400	900	32,38	1207
.32 S & W long	WC 6,4 | 98	Vihtavuori N 310	0,09	1,39	1000	700	23,2	1206
.32 S & W long	LRN 6,4 | 98	Vihtavuori N 310	0,15	2,31	1000	800	32,3	1206
.357 Magnum	SP-FN 10,2 | 158	Bofors PK 6	0,834	12,87	3200	1600	40,35	1212 / 1253
.38 Special	WC 9,6 | 148	Vihtavuori N 310	0,17	2,62	1200		29,80	1206
.38 Special	LRN 10,2 | 158	Vihtavuori N 310	0,215	3,32	1500	800	39,37	1206
.38 Special	SP-FN 10,2 | 158	Bofors PK 6	0,60	9,26	1500	1300	37,00	1206

NOSLER | BALL. TIP | SIERRA | ABC | MATCH | FULL METAL JACKET

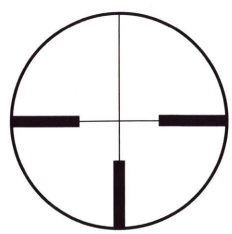
"To get much closer to the target."

"Long-range shot telescopic sight HP-WSZ 3-12 x 50"

A telescopic sight has been developed by **hirtenberger** in collaboration with the company, Schmidt & Bender, which also satisfies all long-distance hunting requirements.

This variable telescopic sight 3-12 x 50 also makes it possible to adapt the field of view to the different conditions. This means that a very large field of view is achieved at lower enlargement (Rousing).

Thanks to the excellent 50 mm lens a maximum performance is obtained at dusk and in poor light.



"Collimator 4 A (can also be supplied at extra cost with illuminated collimator)"

"Height adjustment rings"

The weapon is adjusted with the telescopic sight at 100 m (bulls eye), after which the click-stop ring is set up in such a way that the number „1" coincides with the white index point.

After this, at least control shots should be fired at 200 and 300 m with the corresponding adjustment (2 or 3).
The adjustment rings have been manufactured solely for cartridges produced by **hirtenberger** and matched to these cartridges. The precise cartridge is engraved on the adjustment ring.

In this way you have a telescopic sight which also makes a bulls eye possible for you at long distances.

Enlargement	3 -12 x
Field of view at 100 m/m	11,1 - 4,2
Lens diameter mm	45,3 - 50
Exit pupil mm	14,3 - 4,3
Brightness according to DIN 58386	11,7 - 24,5
Interpupillary distance mm	80
Centre tube diameter mm	30
Lens tube diameter mm	57
Length mm	345
Point of impact adjustment mm - 1 click for 100 m	10
Light metal without rail g	600
Light metal with rail g	620

"Adjustment rings 300 Win.Magn. 11,6 g Nosler 7 mm RM 9,1 g Nosler"

“ Ballistical data for rifle cartridges ”

Cartridge	Weight of bullet		Velocity m/s						Bullet energy Joule							Point of impact in relation to sighting line, with scope mounted, in cm					
	g	grs	V_0	V_{100}	V_{150}	V_{200}	V_{250}	V_{300}	E_0	E_{100}	E_{150}	E_{200}	E_{250}	E_{300}	GEE	50	100	150	200	250	300
.22 Hornet	2,92	45	770	605	530	465	410	360	866	534	410	316	245	189	140	+2,0	+4,0	-1,0	-15,0	-40,0	-80,0
.222 Rem.	3,24	50	985	789	710	635	564	496	1572	1008	817	653	515	399	191	-0,3	+3,7	+3,4	-1,2	-12,0	-29,0
.222 Rem.	3,6	55	935	809	750	694	640	588	1574	1178	1013	867	737	622	180	+1,0	+4,0	+3,0	-2,5	-13,0	-30,0
.222 Rem.	3,6	55	935	813	758	707	659	615	1574	1190	1034	900	782	681	182	+1,0	+4,0	+3,0	-2,5	-12,5	-28,0
.222 Rem. Mag.	3,6	55	1000	860	795	734	675	618	1800	1331	1138	970	820	687	195	+1,0	+4,0	+3,5	-0,5	-9,5	-24,0
.222 Rem. Mag.	3,6	55	1000	869	809	754	703	655	1800	1359	1178	1023	890	772	195	+1,0	+4,0	+3,5	-0,5	-9,5	-23,0
.222 Rem. Mag.	3,6	55	955	795	725	660	600	545	1642	1138	946	784	648	535	190	+1,0	+4,0	+3,5	-1,0	-10,5	-26,0
.223 Rem.	3,6	55	1000	860	795	734	675	618	1800	1331	1138	970	820	687	195	+1,0	+4,0	+3,5	-0,5	-9,5	-24,0
.223 Rem.	3,6	55	1000	869	809	754	703	655	1800	1359	1178	1023	890	772	195	+1,0	+4,0	+3,5	-0,5	-9,5	-23,0
.223 Rem.	3,6	55	955	795	725	660	600	545	1642	1138	946	784	648	535	190	+1,0	+4,0	+3,5	-1,0	-10,5	-26,0
.223 Rem. VM-Sp	3,6	55	1010	878	817	760	706	656	1836	1388	1202	1039	897	774	195	+0,7	+3,9	+3,5	-1,0	-9,0	-22,0
5,6 x 50 Mag.	3,6	55	1000	860	795	734	675	618	1800	1331	1138	970	820	687	195	+1,0	+4,0	+3,5	-0,5	-9,5	-24,0
5,6 x 50 Mag.	3,6	55	1000	869	809	754	703	655	1800	1359	1178	1023	890	772	195	+1,0	+4,0	+3,5	-0,5	-9,5	-23,0
5,6 x 50 Mag.	3,6	55	1005	840	765	698	635	578	1818	1270	1053	877	726	601	205	+1,0	+4,0	+4,0	+0,5	-8,5	-24,0
5,6 x 50 R Mag.	3,6	55	1000	860	795	734	675	618	1800	1331	1138	970	820	687	195	+1,0	+4,0	+3,5	-0,5	-9,5	-24,0
5,6 x 50 R Mag.	3,6	55	1000	869	809	754	703	655	1800	1359	1178	1023	890	772	195	+1,0	+4,0	+3,5	-0,5	-9,5	-23,0
5,6 x 50 R Mag.	3,6	55	1005	840	765	698	635	578	1818	1270	1053	877	726	601	205	+1,0	+4,0	+4,0	+0,5	-8,5	-24,0
.243 Win.	6,2	95	940	845	800	756	714	674	2739	2213	1984	1772	1580	1408	190	+1,0	+4,0	+3,5	-1,5	-10,0	-23,0
.243 Win.	6,2	95	950	854	810	768	728	690	2798	2261	2034	1828	1643	1476	190	+1,0	+4,0	+3,5	-1,5	-10,0	-23,0
.243 Win.	6,5	100	920	820	773	727	683	640	2751	2185	1942	1718	1516	1331	185	+1,0	+4,0	+3,0	-2,0	-12,0	-27,0
.243 Win.	6,5	100	880	832	745	704	666	630	2517	2014	1802	1612	1442	1290	171	+1,0	+4,0	+2,5	-3,5	-14,0	-30,5
6,5 x 54 Msch	10,4	160	670	593	558	525	494	465	2334	1829	1619	1433	1269	1124	140	+3,0	+4,0	-1,5	-15,5	-38,0	-71,0
6,5 x 55	10,4	160	760	679	642	607	573	542	3004	2397	2143	1916	1707	1528	155	+2,5	+4,0	+0,5	-9,5	-27,0	-51,0
6,5 x 57	6,8	105	940	820	764	710	658	609	3004	2286	1985	1714	1472	1261	185	+1,0	+4,0	+3,0	-2,0	-12,5	-28,0
6,5 x 57	7,8	120	880	803	767	733	700	668	3020	2514	2294	2093	1909	1742	179	+1,0	+4,0	+2,5	-3,0	-12,5	-27,5
6,5 x 57	8,1	125	865	795	761	729	697	665	3030	2560	2345	2152	1968	1791	180	+1,0	+4,0	+2,5	-3,0	-13,0	-29,0
6,5 x 57	9,1	140	810	740	706	674	642	610	2985	2492	2268	2067	1875	1693	165	+1,5	+4,0	+1,5	-5,0	-17,5	-36,5
6,5 x 57 R	6,8	105	875	757	702	650	601	555	2608	1948	1676	1437	1228	1047	170	+1,0	+4,0	+2,0	-4,8	-17,5	-37,0
6,5 x 57 R	7,8	120	840	762	725	691	658	626	2752	2263	2052	1861	1687	1530	171	+1,5	+4,0	+2,0	-4,5	-16,0	-33,0
6,5 x 57 R	8,1	125	810	740	706	674	642	610	2657	2218	2019	1840	1669	1507	165	+1,5	+4,0	+1,5	-5,0	-17,5	-36,5
6,5 x 57 R	9,1	140	755	723	689	627	597	569	2594	2378	2160	1789	1622	1473	155	+1,5	+4,0	+1,0	-8,0	-23,5	-45,0
6,5 x 68	6,8	105	1030	915	860	808	759	711	3607	2847	2515	2220	1959	1719	200	+0,5	+3,5	+3,5	±0,0	-7,0	-18,5
6,5 x 68	7,8	120	985	896	855	815	777	741	3784	3131	2848	2590	2356	2143	198	+0,5	+3,5	+3,5	±0,0	-7,5	-19,0
6,5 x 68	8,1	125	950	860	817	776	736	697	3655	2995	2703	2439	2194	1968	195	+1,0	+4,0	+3,5	-0,5	-9,0	-21,5
6,5 x 68	9,1	140	890	805	765	725	685	650	3604	2949	2663	2392	2135	1922	180	+1,1	+3,9	+2,8	-2,7	-12,7	-28,0
.270 Win.	8,4	130	910	840	806	774	742	710	3478	2964	2728	2516	2312	2117	190	+1,0	+4,0	+3,0	-1,0	-9,5	-23,0
.270 Win.	8,4	130	890	812	776	742	709	677	3327	2772	2531	2310	2109	1925	181	+1,0	+3,5	+2,5	-2,5	-12,0	-26,5
.270 Win.	9,7	150	860	792	760	728	697	667	3587	3042	2801	2570	2356	2158	180	+1,5	+4,0	+2,5	-3,0	-13,5	-28,5
7 x 57	9,1	140	850	780	746	714	682	650	3287	2768	2532	2320	2116	1922	175	+1,0	+4,0	+2,5	-3,5	-14,5	-31,0
7 x 57	9,1	140	850	772	736	702	669	638	3287	2715	2467	2242	2037	1851	173	+1,5	+4,0	+2,0	-4,0	-15,0	-31,5
7 x 57	11,3	175	760	700	671	643	615	588	3263	2769	2544	2336	2137	1953	160	+2,0	+4,0	+1,0	-7,5	-21,5	-43,0
7 x 57 R	9,1	140	820	750	716	684	652	620	3059	2559	2333	2129	1934	1749	170	+1,5	+4,0	+2,0	-4,5	-16,5	-35,0
7 x 57 R	9,1	140	800	730	697	666	636	608	2912	2424	2212	2018	1841	1680	164	+1,5	+4,0	+1,5	-6,0	-18,5	-37,5
7 x 57 R	11,3	175	735	675	646	618	590	563	3052	2574	2358	2158	1967	1791	155	+2,0	+4,0	+0,5	-9,0	-25,0	-48,0
7 x 64	9,1	140	890	812	775	739	704	669	3604	3000	2733	2485	2255	2036	185	+1,0	+4,0	+3,0	-2,0	-11,5	-26,5
7 x 64	9,1	140	890	802	762	724	685	652	3604	2927	2642	2385	2135	1934	190	+1,0	+4,0	+3,5	-1,0	-9,5	-23,0
7 x 64	10,0	155	820	720	673	627	583	541	3362	2592	2265	1966	1699	1463	165	+1,5	+4,0	+1,5	-6,5	-21,0	-42,0
7 x 64	11,3	175	810	746	715	685	655	626	3707	3144	2888	2651	2424	2214	170	+1,5	+4,0	+1,5	-5,0	-17,5	-36,0
7 x 64	11,3	175	800	753	731	709	688	668	3616	3204	3019	2840	2674	2521	170	+1,5	+4,0	+2,0	-4,5	-16,0	-33,0
7 x 65 R	9,1	140	880	802	765	729	694	659	3524	2927	2663	2418	2191	1976	180	+1,0	+4,0	+2,5	-2,5	-12,5	-28,0
7 x 65 R	9,1	140	860	782	746	712	679	648	3365	2785	2534	2305	2097	1908	175	+1,0	+4,0	+2,5	-3,5	-14,0	-30,0
7 x 65 R	10,0	155	800	700	653	607	564	522	3200	2450	2132	1842	1590	1362	160	+1,5	+4,0	+1,0	-7,5	-23,0	-46,0
7 x 65 R	11,3	175	785	721	690	660	630	601	3482	2937	2690	2461	2242	2041	160	+1,5	+4,0	+1,5	-6,5	-20,0	-40,0
7 x 65 R	11,3	175	785	739	717	696	675	655	3482	3086	2905	2737	2574	2424	165	+1,5	+4,0	+1,5	-5,5	-17,5	-35,0
7 mm Rem. Mag.	9,1	140	980	912	880	848	817	787	4370	3784	3524	3272	3037	2818	210	+1,0	+3,5	+4,0	+0,5	-5,5	-15,5
7 mm Rem. Mag.	9,1	140	985	896	855	815	777	741	4415	3653	3323	3022	2749	2501	198	+0,5	+3,5	+3,5	±0,0	-7,5	-19,0
7 mm Rem. Mag.	11,3	175	870	809	780	751	723	696	4276	3698	3437	3187	2953	2737	198	+1,0	+4,0	+3,0	-2,5	-12,0	-26,0
.308 Win. VM-Sp	9,5	146	860	785	750	715	680	650	3513	2927	2672	2428	2196	2007	178	+1,3	+3,9	+2,7	-3,2	-13,8	-29,7
.308 Win.	9,7	150	890	800	757	716	676	637	3842	3104	2779	2486	2216	1968	180	+1,0	+4,0	+2,5	-3,0	-13,0	-29,0
.308 Win.	10,7	165	780	708	674	642	611	582	3255	2678	2429	2203	1998	1812	159	+1,5	+4,0	+1,0	-7,0	-21,0	-42,0
.308 Win. Match	12,3	190	730	677	651	626	601	577	3277	2819	2606	2410	2221	2048	160	+2,0	+4,0	+1,5	-8,0	-24,5	-46,0
.308 Win.	11,6	180	770	706	675	645	616	588	3439	2891	2643	2413	2201	2005	160	+1,5	+4,0	+1,0	-7,5	-21,5	-42,0
.30-06 Springf.	9,7	150	895	820	784	749	715	682	3885	3261	2981	2721	2479	2256	185	+1,0	+4,0	+3,0	-2,0	-11,5	-25,5
.30-06 Springf.	10,7	165	785	712	678	646	615	586	3297	2713	2461	2233	2025	1837	160	+1,5	+4,0	+1,0	-7,0	-20,5	-41,0
.30-06 Springf.	10,7	165	820	710	660	615	575	535	3597	2697	2330	2024	1769	1531	175	+1,5	+4,0	+3,0	-6,0	-20,0	-35,0
.30-06 Springf.	11,6	180	810	745	714	683	653	624	3805	3219	2957	2706	2473	2258	170	+1,0	+4,0	+2,0	-5,0	-17,5	-35,0
.300 Win. Mag.	9,7	150	975	895	857	820	784	748	4611	3885	3562	3261	2981	2714	205	+0,5	+3,5	+3,5	+0,5	-6,0	-17,5
.300 Win. Mag.	10,7	165	895	817	783	750	720	695	4285	3571	3280	3009	2773	2584	185	+1,0	+4,0	+3,0	-1,5	-10,5	-23,5
.300 Win. Mag.	10,7	165	910	800	740	690	645	600	4430	3424	2930	2547	2226	1926	185	+1,5	+4,0	+3,5	-2,5	-14,0	-28,0
.300 Win. Mag.	11,6	180	910	845	814	783	753	724	4803	4141	3843	3556	3289	3040	190	+1,0	+4,0	+3,5	-1,0	-9,5	-22,0
8 x 57 IS	11,3	175	780	718	688	660	633	607	3437	2908	2675	2461	2263	2082	161	+1,5	+4,0	+1,0	-6,5	-20,0	-39,5
8 x 57 IS	13,0	200	750	680	646	614	582	551	3656	3006	2713	2450	2202	1973	155	+2,0	+4,0	+0,5	-8,5	-24,5	-48,0
8 x 57 IRS	11,3	175	760	699	670	643	616	591	3263	2760	2538	2334	2146	1973	157	+1,5	+4,0	+1,0	-7,5	-22,0	-42,5
8 x 57 IRS	13,0	200	725	655	621	589	557	527	3417	2789	2507	2255	2017	1805	150	+2,0	+4,0	±0,0	-10,5	-28,0	-53,0
8 x 68 S	11,3	175	945	873	839	806	774	744	5046	4302	3972	3668	387	3127	193	+1,0	+3,5	+3,0	-1,0	-8,5	-20,5
8 x 68 S	13,0	200	875	775	725	680	635	595	4977	3904	3417	3006	2621	2301	175	+1,0	+4,0	+2,0	-4,0	-15,0	-32,0
8 x 68 S	13,0	200	895	826	793	761	729	699	5207	4435	4088	3764	3554	3175	185	+1,0	+3,5	+2,5	-2,0	-11,0	-25,0
9,3 x 74 R	17,5	270	720	650	615	585	550	525	4563	3697	3309	2994	2647	2412	150	+1,5	+4,0	±0,0	-10,0	-26,0	-50,0
.375 H&H Mag.	17,65	272	806	703	660	622	587	554	5733	4361	3844	3414	3041	2709	138	+1,9	+3,8	-2,1	-13,2	-28,0	-46,0

NOSLER BALLISTIC TIP SIERRA ABC MATCH FULL METAL JACKET

“ Point of impact deviation from sighting line in centimetres, for 100 and 200 metres target distance ”

Cartridge	Weight of bullet		Point of impact deviation in cm at 100 m						Point of impact deviation in cm at 200 m					
	g	grs	50m	100m	150m	200m	250m	300m	50m	100m	150m	200m	250m	300m
.22 Hornet	2,92	45	1,0	⊕	-7,5	-23,5	-51,0	-93,0	6,5	12,0	10,0	⊕	-21,5	-57,5
.222 Rem.	3,24	50	-0,5	⊕	-2,5	-9,0	-24,0	-43,0	1,0	4,5	4,0	⊕	-11,0	-27,0
.222 Rem.	3,6	55	-1,0	⊕	-3,0	-10,0	-23,0	-41,5	1,5	5,0	4,5	⊕	-10,0	-26,0
.222 Rem.	3,6	55	-1,0	⊕	-3,0	-9,5	-22,5	-40,5	1,5	5,0	4,5	⊕	-9,5	-25,0
.222 Rem. Mag.	3,6	55	-1,0	⊕	-2,0	-8,0	-19,0	-35,5	1,0	4,5	4,0	⊕	-8,5	-23,0
.222 Rem. Mag.	3,6	55	-1,0	⊕	-2,0	-8,0	-19,0	-35,0	1,0	4,5	4,0	⊕	-8,5	-22,0
.222 Rem. Mag.	3,6	55	-1,0	⊕	-2,5	-8,5	-21,0	-38,0	1,0	5,0	4,0	⊕	-9,0	-24,0
.223 Rem.	3,6	55	-1,0	⊕	-2,0	-8,0	-19,0	-35,5	1,0	4,5	4,0	⊕	-8,5	-23,0
.223 Rem.	3,6	55	-1,0	⊕	-2,0	-8,0	-19,0	-35,0	1,0	4,5	4,0	⊕	-8,5	-22,0
.223 Rem.	3,6	55	-1,0	⊕	-2,5	-8,5	-21,0	-38,0	1,0	5,0	4,0	⊕	-9,0	-24,0
.223 Rem. VM-Sp	3,6	55	-0,5	⊕	-2,0	-8,0	-18,5	-33,5	1,0	4,5	4,0	⊕	-8,0	-21,5
5,6 x 50 Mag.	3,6	55	-1,0	⊕	-2,0	-8,0	-19,0	-35,5	1,0	4,5	4,0	⊕	-8,5	-23,0
5,6 x 50 Mag.	3,6	55	-1,0	⊕	-2,0	-8,0	-19,0	-35,0	1,0	4,5	4,0	⊕	-8,5	-22,0
5,6 x 50 Mag.	3,6	55	-0,5	⊕	-2,0	-7,5	-18,0	-34,0	1,0	4,0	4,0	⊕	-8,5	-23,0
5,6 x 50 R Mag.	3,6	55	-1,0	⊕	-2,0	-8,0	-19,0	-35,5	1,0	4,5	4,0	⊕	-8,5	-23,0
5,6 x 50 R Mag.	3,6	55	-1,0	⊕	-2,0	-8,0	-19,0	-35,0	1,0	4,5	4,0	⊕	-8,5	-22,0
5,6 x 50 R Mag.	3,6	55	-0,5	⊕	-2,0	-7,5	-18,0	-34,0	1,0	4,0	4,0	⊕	-8,5	-23,0
.243 Win.	6,2	95	-1,0	⊕	-2,5	-9,0	-20,0	-35,0	1,5	4,5	4,0	⊕	-8,5	-22,0
.243 Win.	6,2	95	-1,0	⊕	-2,5	-9,0	-20,0	-35,0	1,5	4,5	4,0	⊕	-8,5	-22,0
.243 Win.	6,5	100	-1,0	⊕	-3,0	-9,5	-21,0	-38,0	1,5	5,0	4,5	⊕	-9,0	-24,0
.243 Win.	6,5	100	-1,0	⊕	-3,5	-10,0	-23,0	-40,0	1,5	5,0	4,0	⊕	-10,0	-26,0
6,5 x 54 Msch	10,4	160	1,0	⊕	-8,0	-24,0	-49,0	-84,0	7,0	12,0	10,0	⊕	-19,0	-47,5
6,5 x 55	10,4	160	0,0	⊕	-5,5	-17,5	-36,0	-63,0	3,5	8,0	7,0	⊕	-15,0	-35,0
6,5 x 57	6,8	105	-1,0	⊕	-3,0	-10,0	-22,0	-39,0	1,5	5,0	4,5	⊕	-9,5	-24,5
6,5 x 57	7,8	120	-1,0	⊕	-3,5	-11,0	-23,0	-40,0	2,0	5,5	5,0	⊕	-9,0	-24,0
6,5 x 57	8,1	125	-1,0	⊕	-3,5	-11,0	-23,0	-40,5	2,0	5,5	5,0	⊕	-9,5	-24,5
6,5 x 57	9,1	140	-0,5	⊕	-4,0	-13,0	-27,5	-48,0	3,0	6,5	5,5	⊕	-11,0	-28,5
6,5 x 57 R	6,8	105	-0,5	⊕	-3,5	-13,0	-28,0	-49,0	2,5	6,0	5,5	⊕	-11,5	-29,0
6,5 x 57 R	7,8	120	-0,5	⊕	-3,5	-13,0	-27,0	-46,5	2,5	6,0	5,5	⊕	-11,0	-27,0
6,5 x 57 R	8,1	125	-0,5	⊕	-4,0	-13,0	-27,5	-48,0	3,0	6,5	5,5	⊕	-11,5	-29,0
6,5 x 57 R	9,1	140	-0,5	⊕	-4,5	-15,0	-31,0	-53,0	3,5	7,0	6,0	⊕	-12,5	-30,5
6,5 x 68	6,8	105	-1,0	⊕	-2,0	-7,5	-17,0	-30,0	0,5	3,5	3,5	⊕	-7,0	-18,5
6,5 x 68	7,8	120	-1,0	⊕	-2,5	-8,0	-17,5	-31,0	0,5	3,5	3,5	⊕	-7,5	-19,0
6,5 x 68	8,1	125	-1,0	⊕	-2,5	-8,5	-18,5	-33,0	1,0	4,0	3,5	⊕	-8,0	-20,5
6,5 x 68	9,1	140	-0,5	⊕	-3,0	-11,0	-23,5	-41,0	2,0	5,0	4,5	⊕	-9,5	-24,0
.270 Win.	8,4	130	-1,0	⊕	-2,5	-9,0	-19,0	-35,0	1,5	4,5	4,0	⊕	-8,5	-21,5
.270 Win.	8,4	130	-1,0	⊕	-3,0	-10,0	-22,0	-38,0	2,0	5,0	4,5	⊕	-9,0	-23,0
.270 Win.	9,7	150	-1,0	⊕	-3,0	-10,5	-23,0	-40,0	2,0	5,5	5,0	⊕	-9,5	-24,0
7 x 57	9,1	140	-0,5	⊕	-3,5	-11,0	-24,0	-42,5	2,0	5,5	5,0	⊕	-10,0	-25,5
7 x 57	9,1	140	-0,5	⊕	-3,5	-11,5	-25,0	-44,0	2,0	5,5	5,0	⊕	-10,5	-26,5
7 x 57	11,3	175	-0,5	⊕	-4,5	-15,0	-31,5	-54,5	3,5	7,5	6,5	⊕	-12,5	-32,0
7 x 57 R	9,1	140	-0,5	⊕	-4,0	-12,5	-26,5	-47,0	2,5	6,0	5,5	⊕	-11,0	-28,0
7 x 57 R	9,1	140	-0,5	⊕	-4,0	-13,5	-28,5	-50,0	3,0	6,5	5,5	⊕	-11,5	-29,0
7 x 57 R	11,3	175	0,0	⊕	-5,5	-16,5	-35,0	-60,0	4,0	8,0	7,0	⊕	-14,0	-35,0
7 x 64	9,1	140	-1,0	⊕	-3,0	-10,0	-21,5	-38,0	1,5	5,0	4,5	⊕	-9,0	-23,5
7 x 64	9,1	140	-1,0	⊕	-3,0	-9,5	-21,0	-37,0	1,5	5,0	4,5	⊕	-8,5	-22,0
7 x 64	10,0	155	-0,5	⊕	-4,5	-14,0	-31,5	-54,0	3,0	7,0	6,0	⊕	-13,0	-32,5
7 x 64	11,3	175	-0,5	⊕	-4,0	-13,0	-27,0	-47,5	2,5	6,5	5,5	⊕	-11,0	-28,0
7 x 64	11,3	175	-0,5	⊕	-4,0	-13,0	-26,5	-46,0	2,5	6,5	5,5	⊕	-10,5	-26,0
7 x 65 R	9,1	140	-1,0	⊕	-3,0	-10,5	-22,0	-39,5	1,5	5,0	4,5	⊕	-9,5	-24,0
7 x 65 R	9,1	140	-1,0	⊕	-3,0	-11,0	-24,0	-42,0	1,5	5,5	5,0	⊕	-10,0	-25,0
7 x 65 R	10,0	155	-0,5	⊕	-4,5	-15,0	-32,0	-57,0	3,5	7,5	6,5	⊕	-13,0	-34,0
7 x 65 R	11,3	175	-0,5	⊕	-4,5	-14,0	-29,6	-51,5	3,5	7,0	6,0	⊕	-12,0	-30,5
7 x 65 R	11,3	175	-0,5	⊕	-4,5	-14,0	-28,5	-48,0	3,5	7,0	6,0	⊕	-11,0	-27,0
7 mm Rem. Mag.	9,1	140	-1,0	⊕	-2,0	-7,0	-15,0	-27,0	0,5	3,5	3,0	⊕	-7,0	-17,0
7 mm Rem. Mag.	9,1	140	-1,0	⊕	-2,0	-7,5	-16,0	-29,5	0,5	3,5	3,5	⊕	-7,5	-19,0
7 mm Rem. Mag.	11,3	175	-1,0	⊕	-3,0	-10,0	-21,5	-37,5	1,5	5,0	4,5	⊕	-9,0	-22,5
.308 Win. VM-Sp	9,5	146	-0,5	⊕	-3,5	-12,0	-25,0	-43,0	2,0	5,5	5,0	⊕	-10,0	-25,5
.308 Win.	9,7	150	-0,5	⊕	-3,0	-10,5	-23,0	-40,5	2,0	5,5	5,0	⊕	-9,5	-25,0
.308 Win.	10,7	165	-0,5	⊕	-4,5	-14,5	-31,0	-53,0	3,0	7,0	6,0	⊕	-12,5	-31,0
.308 Win. Match	12,3	190	0,0	⊕	-6,0	-17,5	-35,0	-58,5	4,0	8,0	7,0	⊕	-13,5	-33,5
.308 Win.	11,6	180	0,0	⊕	-5,0	-15,5	-31,5	-53,5	3,5	7,5	6,5	⊕	-12,5	-31,5
.30-06 Springf.	9,7	150	-1,0	⊕	-3,0	-9,5	-21,0	-37,0	1,5	5,0	4,5	⊕	-9,0	-22,5
.30-06 Springf.	10,7	165	-0,5	⊕	-4,5	-14,5	-30,5	-52,5	3,0	7,0	6,0	⊕	-11,5	-30,0
.30-06 Springf.	10,7	165	-0,5	⊕	-4,0	-13,5	-28,5	-50,0	3,0	6,5	6,0	⊕	-11,0	-29,0
.30-06 Springf.	11,6	180	-0,5	⊕	-4,0	-13,0	-27,0	-47,0	3,0	6,5	6,0	⊕	-11,0	-27,5
.300 Win. Mag.	9,7	150	-1,0	⊕	-2,0	-7,0	-16,0	-29,0	0,5	3,5	3,5	⊕	-7,0	-18,5
.300 Win. Mag.	10,7	165	-0,5	⊕	-3,5	-10,5	-22,0	-38,0	2,0	5,5	5,0	⊕	-9,0	-21,5
.300 Win. Mag.	10,7	165	-1,0	⊕	-3,0	-11,0	-23,5	-42,0	1,5	5,0	4,5	⊕	-10,0	-24,5
.300 Win. Mag.	11,6	180	-1,0	⊕	-2,5	-9,0	-19,0	-34,0	1,5	4,5	4,0	⊕	-8,0	-20,5
8 x 57 IS	11,3	175	-0,5	⊕	-5,0	-15,0	-30,0	-52,0	3,0	7,0	6,0	⊕	-12,0	-30,0
8 x 57 IS	13,0	200	0,0	⊕	-5,5	-16,5	-34,5	-59,5	4,0	8,0	7,0	⊕	-14,0	-35,0
8 x 57 IRS	11,3	175	0,0	⊕	-5,5	-16,0	-33,0	-56,0	3,5	7,5	6,5	⊕	-12,5	-32,0
8 x 57 IRS	13,0	200	0,0	⊕	-6,0	-18,0	-38,0	-64,5	4,5	9,0	7,5	⊕	-15,0	-37,0
8 x 68 S	11,3	175	-1,0	⊕	-2,5	-8,5	-18,0	-32,0	1,5	4,5	4,0	⊕	-7,5	-19,5
8 x 68 S	13,0	200	-0,5	⊕	-4,0	-12,5	-26,0	-45,0	3,0	6,5	5,5	⊕	-10,5	-26,0
8 x 68 S	13,0	200	-1,0	⊕	-3,5	-10,5	-21,5	-37,5	2,0	5,0	4,5	⊕	-8,5	-22,0
9,3 x 74 R	17,5	270	0,0	⊕	-6,5	-18,5	-37,0	-63,0	4,5	9,5	8,0	⊕	-14,5	-36,0
.375 H&H Mag.	17,65	272	0,0	⊕	-5,0	-16,0	-35,0	-57,0	4,0	8,0	7,0	⊕	-13,0	-33,0

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BULGARINI WERBEAGENTUR

AUSTRIA

hirtenberger Aktiengesellschaft

A-2552 Hirtenberg, Leobersdorfer Straße 31-33
Tel: ++43(0)2256/811 84-0, Fax: ++43(0)2256/818 07
E-mail: sales@hirtenberger.at, Internet: www.hirtenberger.at